CLAIMS:

1. A method comprising:

generating a first signal to represent zero crossings for an alternating current (AC) input voltage waveform;

determining a zero crossing period using said first signal;

retrieving a plurality of delay times using said zero crossing period;

generating a second signal using said first signal and said delay times; and

applying said AC input voltage to a coil in accordance with said second signal to create a magnetic field to deactivate an EAS marker.

2. The method of claim 1, wherein said applying creates a current waveform corresponding to an amplitude profile over a time interval.

3. The method of claim 2, wherein said current waveform decreases in amplitude over said time interval in accordance with said amplitude profile.

4. The method of claim 3, wherein said decrease in amplitude is exponential.

5. The method of claim 1, wherein said generating comprises:

retrieving a zero crossing time from said first signal;

retrieving a delay time from said plurality of delay times;

measuring a time interval between said zero crossing time and said delay time; and

generating said second signal to indicate an end of said time interval.

6. The method of claim 1, further comprising:

detecting said EAS marker; and

sending a detection signal to a zero crossing detector.

7. An apparatus, comprising:

a zero crossing circuit to detect zero crossings of an alternating current (AC) input voltage waveform, and generate a first signal to represent said zero crossings;

a processor to connect to said zero crossing circuit, said processor to receive said first signal and retrieve a plurality of delay times based on said first signal, and to generate a second signal using said first signal and said delay times; and

a coil circuit to connect to said processor, said coil circuit to receive said second signal and create a magnetic field to deactivate an electronic article surveillance (EAS) marker.

8. The apparatus of claim 7, wherein said coil circuit comprises:

an AC voltage source to generate said AC input voltage;

a coil to couple to said AC voltage source; and

a switch to couple to said coil and receive said second signal, said switch to apply said AC input voltage to said coil in response to said second signal.

9. The apparatus of claim 8, wherein said first signal comprises a pulse train with each pulse to represent a zero crossing, each delay time represents a different time interval between an edge of a pulse from said pulse train and a start time to apply said AC input voltage to said coil, and said second signal represents said start times.

10. The apparatus of claim 9, wherein said delay times increase over time.

11. The apparatus of claim 9, wherein a peak current per cycle for said antenna decreases as delay times increase.

12. The apparatus of claim 11, wherein said switch is a triode alternating current (TRIAC) switch.

13. The apparatus of claim 12, wherein said TRIAC switch is closed to apply said AC input voltage to said coil, with said TRIAC switch to automatically commutate open over a time interval.

14. The apparatus of claim 7, wherein said processor determines a zero crossing period based on said first signal and uses said zero crossing period to retrieve said delay times, with each delay time to represent a time between said zero crossings.

15. The apparatus of claim 8, wherein said coil comprises an inductor and a parasitic resistor.

16. The apparatus of claim 15, wherein said magnetic field decays over time.

17. The apparatus of claim 16, wherein said decaying magnetic field is proportional to a number of turns in said coil times a peak coil current.

18. The apparatus of claim 7, further comprising a marker detector to detect said EAS marker.

19. An article comprising:

a storage medium;

said storage medium including stored instructions that, when executed by a processor, result in determining a zero crossing period using a first signal to represent zero crossings from an alternating current (AC) input voltage waveform, retrieving a plurality of delay times using said zero crossing period, generating a second signal using said first signal and said delay times, and sending said second signal to a coil circuit to create a magnetic field to deactivate an electronic article surveillance (EAS) marker.

20. The article of claim 19, wherein the stored instructions, when executed by a processor, further result in said generating by retrieving a zero crossing time from said first signal, retrieving a delay time from said plurality of delay times, measuring a time interval between said zero crossing time and said delay time, and generating said second signal to indicate an end of said time interval.

21. An electronic article surveillance deactivator, comprising:

a zero crossing circuit to detect zero crossings of an alternating current (AC) input voltage waveform, and generate a first signal to represent said zero crossings;

a processor to retrieve a plurality of delay times, and generate a second signal using said first signal and said delay times; and

a coil circuit to use said second signal to deactivate an electronic article surveillance (EAS) marker using phase control of said AC input voltage.

22. The deactivator of claim 21, wherein said coil circuit comprises:

an AC voltage source to generate said AC input voltage;

a coil to couple to said AC voltage source; and

a switch to couple to said coil and receive said second signal, said switch to apply said AC input voltage to said coil in response to said second signal.